

## Comparative Mouse Genomics Centers Consortium (CMGCC):

### Mouse Models to Improve Understanding of the Biological Significance of Human Polymorphisms

The CMGCC is a multidisciplinary, multi-institutional component of the Environmental Genome Project (EGP). This program commenced in 2001 to develop resources in transgenic and knockout mouse models based on single nucleotide polymorphisms (SNPs) in human environmentally responsive genes. The specific goals of the CMGCC are to

- identify functional SNPs that are relevant to human environmental health;
- develop transgenic and knockout mouse models based on functional human SNPs in environmental response genes;
- validate mouse models by genotypic and phenotypic characterizations;
- understand the mechanism(s) of SNP functionality and its relationship to disease susceptibility through exposure assessment studies on variant mouse models; and
- develop databases that incorporate findings and share information and resources with the scientific community.

Currently, the CMGCC has 54 transgenic or knockout mouse models at varying stages of construction and characterization (with regard to genotyping and phenotyping) for use as SNPs mice. Mouse repositories housing available mouse lines are the Mutant Mouse Regional Repository Centers (MMRRC) (<http://www.mmrrc.org/index.html>) and the Mouse Models of Human Cancer Consortium Mouse Repository (MMHCC) (<http://mouse.ncifcrf.gov/>). The 19 mouse models available from either the MMHCC or the MMRRC are listed in the table below. There are an additional 19 mouse models available directly from CMGCC investigators.

Gene/polymorphism	Mutation type	Projected use	Status	Repository
ATM	Deletion mutation	Deletion assessment	Available	MMRRC
mCAT	Transgenic, mitochondrial targeted	Oxidative stress	Available	MMRRC
WRN (K577M)	Transgenic, SNP	SNP assessment, cancer, diabetes	Available	MMRRC
Tcra/Tcrl Tg	Transgenic point mutation	Rheumatoid arthritis	Available	MMRRC
CycD1bK5(A870G/exon5)	SNP transgenic	SNP assessment, skin cancer	Available	MMRRC
P53 (R270H)	Conditional SNP	Cancer	Available	MMHCC (Jacks)
Fen1	Deletion mutation by gene targeting	Tool, cancer	Available	MMHCC
creK5	Transgenic conditional Cre system	Tool, cancer	Available	MMRRC
XpaCre	Conditional deletion mutation by gene targeting	Tool, cancer, aging	Available	MMRRC
P58ipk(tm-gfp)	Deletion mutation by gene targeting	Tool, diabetes	Available	MMRRC
HB-Plap (AtoG)	Transgenic	Tool, frame shift indicator mouse	Available	MMHCC
Mlh1	Deletion mutation by gene targeting	Tool, GI cancer	Available	MMHCC
Msh2	Deletion mutation by gene targeting	Tool, GI cancer	Available	MMHCC
Msh3	Deletion mutation by gene targeting	Tool, GI cancer	Available	MMHCC
Msh6	Deletion mutation by gene targeting	Tool, GI cancer	Available	MMHCC
Aprt	Deletion mutation by gene targeting	Tool, LOH indicator mouse	Available	MMHCC
HB-Plap (G11)	Transgenic	Tool, transition indicator	Available	MMHCC
HB-Plap	Transgenic	Tool, transition indicator	Available	MMHCC
Prkr (TAG70)	Transgenic, CMV	Tool, translation regulation of DNA repair	Available	MMRRC

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